PRC Environmental Management, Inc
233 North Michigan Avenue
Suite 1621
Chicago, IL 60601
312-856-8700
Fax 312-938-0118

PRC

PRELIMINARY ASSESSMENT/ VISUAL SITE INSPECTION

PRECISION CHROME, INC.
FOX LAKE, ILLINOIS
ILD 089 062 871

FINAL REPORT

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, DC 20460

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Prepared by	:	PRC Environmental Management, Inc. (Timothy J. Schlichting)
Contractor Project Manager	:	Shin Ahn
Telephone No.	:	(312) 856-8700
EPA Work Assignment Manager	:	Kevin Pierard – 1/27/94
Telephone No.	:	(312) 886-4448

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EXECUTIVE SUMMARY

PRC Environmental Management, Inc. (PRC), performed a preliminary assessment and visual site inspection (PA/VSI) to identify and assess the existence and likelihood of releases from solid waste management units (SWMU) and other areas of concern (AOC) at the Precision Chrome, Inc. (Precision Chrome), facility in Fox Lake, Lake County, Illinois. This summary highlights the results of the PA/VSI and the potential for releases of hazardous wastes or hazardous constituents from SWMUs and AOCs identified. In addition, a completed U.S. Environmental Protection Agency (EPA) Preliminary Assessment Form (EPA Form 2070-12) is included in Appendix A to assist in prioritizing RCRA facilities for corrective action.

The Precision Chrome facility chrome plates steel shafts used primarily in hydraulic equipment. The facility generates and manages the following waste streams: nonhazardous metal filings sludge, nonhazardous miscellaneous wastes, noncontact cooling water (D007), and spent chrome solution (D007).

The facility has operated at its current location since 1971. The facility occupies about 3.4 acres in a mixed-use industrial and residential area and employs about 23 people. The facility property was undeveloped when it was purchased by Precision Chrome in 1970. Precision Chrome began construction of the original facility building in 1971 and completed construction in 1972. The northern addition was completed in 1981. Precision Chrome is the facility's sole owner and operator. The facility's current regulatory status is that of a hazardous waste treatment, storage, or disposal (TSD) facility. The facility operates a Surface Impoundment (SWMU 2) that is regulated as a storage unit for hazardous waste. In 1992, the Illinois Environmental Protection Agency (IEPA) required the facility to submit a closure plan for this unit. Precision Chrome submitted a closure plan in 1993 that included a schedule for submittal of plans for sampling activities and remediation activities. The closure plan was approved by IEPA subject to several conditions and modifications. At the time of the VSI, sediment samples from the Surface Impoundment (SWMU 2) had been collected and analyzed as part of the closure activities, but the plans detailing the closure method had not yet been submitted to IEPA or implemented.

In December 1985, analyses of soil samples collected during an IEPA inspection revealed chrome-contaminated soil at the Condensate Spill Area (AOC 1). Thirty cubic yards of contaminated soil was excavated and disposed at CID Landfill in Calumet City, Illinois, in May 1986. However, chromium contamination was again detected in soil samples collected at AOC 1 during an IEPA inspection in October 1992. In January 1987, 30 cubic yards of chrome-contaminated soil was excavated northeast of the facility building at the Former Waste Staging Area (SWMU 3). The soil was landfilled at the Browning-Ferris Industries (BFI) Winthrop Harbor site.

The PA/VSI identified the following three SWMUs and two AOCs at the facility:

Solid Waste Management Units

1. Dumpster Staging Area
2. Surface Impoundment
3. Former Waste Staging Area

Areas of Concern

1. Condensate Spill Area
2. Drum Staging Area

A release to groundwater has occurred from the Surface Impoundment (SWMU 2). Chromium contamination was detected at 8.375 parts per million (ppm) in groundwater samples collected from the recharge well located next to this unit. This unit is currently undergoing closure. The potential for release to on-site surface soils from SWMU 2 is low because the unit maintains a fairly constant level and has enough unused capacity to make overflow unlikely. However, chromium contamination of sediment at 525 ppm has been documented at this unit. The potential for release to surface water is low because the unit does not discharge to surface water, and it is located 0.5 mile from the nearest surface water body. The potential for release to air is low because the only known contaminant in the unit is chromium, which is nonvolatile.

A release to on-site soils has occurred at the Former Waste Staging Area (SWMU 3). Approximately 200 gallons of spent chrome solution (D007) was spilled in this area in 1987. Thirty cubic yards of contaminated soil was excavated and disposed of off site. However, chromium contamination of soil

at 146 ppm was detected in this area in 1993. The potential for remaining chromium in the soil to be released to groundwater through infiltration is moderate. The potential for release to surface water and air is low because all contamination is subsurface and chromium is a nonvolatile contaminant.

A release to on-site soils has occurred at the Condensate Spill Area (AOC 1). Soil samples collected in this area were found to be contaminated with chromium at 523 ppm. The potential for the chromium in the soil to be released to groundwater through infiltration is moderate. The potential for release to surface water and air is low because all contamination is subsurface and chromium is a nonvolatile contaminant.

The potential to release to groundwater, surface water, air, and on-site soils from SWMU 1 and AOC 2 is low. SWMU 1 includes a concrete pad and a plastic lid to keep out rain water, and it handles only nonhazardous and nonvolatile solid wastes. AOC 2 is a designated, indoor, concrete-floored area used to store covered drums.

Groundwater in the area of the facility is used as an industrial, municipal, and private water supply. A potable well is located on site that was scheduled for abandonment shortly after the VSI. The Village of Fox Lake municipal well is located 0.35 mile north-northwest and generally upgradient of the facility. The nearest residence is located about 700 feet southwest of the facility, and the nearest residential well is located about 0.5 mile northeast of the facility. Several surface water bodies used for recreational purposes are located within 1 mile of the facility, but on-site surface water runoff and drainage flows to the Surface Impoundment (SWMU 2) at the southern end of the facility. Sensitive environments are not located on site, but a wetland is located 500 feet west of the facility, and another wetland is located 800 feet southeast of the facility. Security is provided primarily by staff personnel during working hours, and backup security is provided by a continuously monitored alarm system. The facility is surrounded by a chain-link fence.

PRC recommends that Precision Chrome continue with closure activities in compliance with the approved closure plan for the Surface Impoundment (SWMU 2). PRC also recommends that the facility sample to determine the extent of soil contamination and conduct additional remediation if necessary at the Former Waste Staging Area (SWMU 3) and the Condensate Spill Area (AOC 1).

PRC recommends that the management and regulatory status of the waste stored at the Drum Staging Area (AOC 2) be investigated. PRC recommends no further action for SWMU 1.

1.0 INTRODUCTION

PRC Environmental Management, Inc. (PRC), received Work Assignment No. C05087 from the U.S. Environmental Protection Agency (EPA) under Contract No. 68-W9-0006 (TES 9) to conduct preliminary assessments (PA) and visual site inspections (VSI) of hazardous waste treatment and storage facilities in Region 5.

As part of the EPA Region 5 Environmental Priorities Initiative, the RCRA and CERCLA programs are working together to identify and address RCRA facilities that have a high priority for corrective action using applicable RCRA and CERCLA authorities. The PA/VSI is the first step in the process of prioritizing facilities for corrective action. Through the PA/VSI process, enough information is obtained to characterize a facility's actual or potential releases to the environment from solid waste management units (SWMU) and areas of concern (AOC).

A SWMU is defined as any discernible unit at a RCRA facility in which solid wastes have been placed and from which hazardous constituents might migrate, regardless of whether the unit was intended to manage solid or hazardous waste.

The SWMU definition includes the following:

- RCRA-regulated units, such as container storage areas, tanks, surface impoundments, waste piles, land treatment units, landfills, incinerators, and underground injection wells
- Closed and abandoned units
- Recycling units, wastewater treatment units, and other units that EPA has usually exempted from standards applicable to hazardous waste management units
- Areas contaminated by routine and systematic releases of wastes or hazardous constituents. Such areas might include a wood preservative drippage area, a loading or unloading area, or an area where solvent used to wash large parts has continually dripped onto soils.

An AOC is defined as any area where a release of hazardous waste or constituents to the environment has occurred or is suspected to have occurred on a nonroutine and nonsystematic basis. This includes any area where a strong possibility exists that such a release might occur in the future.

The purpose of the PA is as follows:

- Identify SWMUs and AOCs at the facility
- Obtain information on the operational history of the facility
- Obtain information on releases from any units at the facility
- Identify data gaps and other informational needs to be filled during the VSI

The PA generally includes review of all relevant documents and files located at state offices and at the EPA Region 5 office in Chicago.

The purpose of the VSI is as follows:

- Identify SWMUs and AOCs not discovered during the PA
- Identify releases not discovered during the PA
- Provide a specific description of the environmental setting
- Provide information on release pathways and the potential for releases to each medium
- Confirm information obtained during the PA regarding operations, SWMUs, AOCs, and releases

The VSI includes interviewing appropriate facility staff; inspecting the entire facility to identify all SWMUs and AOCs; photographing all visible SWMUs; identifying evidence of releases; making a preliminary selection of potential sampling parameters and locations, if needed; and obtaining additional information necessary to complete the PA/VSI report.

This report documents the results of a PA/VSI of the Precision Chrome, Inc. (Precision Chrome), facility (EPA Identification No. ILD 089 062 871) in Fox Lake, Lake County, Illinois. The PA was

completed on July 14, 1992. PRC gathered and reviewed information from the Federal Emergency Management Agency (FEMA), Illinois Environmental Protection Agency (IEPA), Illinois State Geological Survey (ISGS), National Oceanic and Atmospheric Administration (NOAA), the U.S. Department of Commerce (USDC), the U.S. Department of the Interior (USDI), the U.S. Geological Survey (USGS), and from EPA Region 5 RCRA files. The VSI was conducted on July 15, 1993. It included interviews with facility representatives and a walk-through inspection of the facility. PRC identified three SWMUs and two AOCs at the facility.

PRC completed EPA Form 2070-12 using information gathered during the PA/VSI. This form is included in Appendix A. The VSI is summarized and five inspection photographs are included in Appendix B. Field notes from the VSI are included in Appendix C.

2.0 FACILITY DESCRIPTION

This section describes the facility's location; past and present operations; waste generating processes and waste management practices; history of documented releases; regulatory history; environmental setting; and receptors.

2.1 FACILITY LOCATION

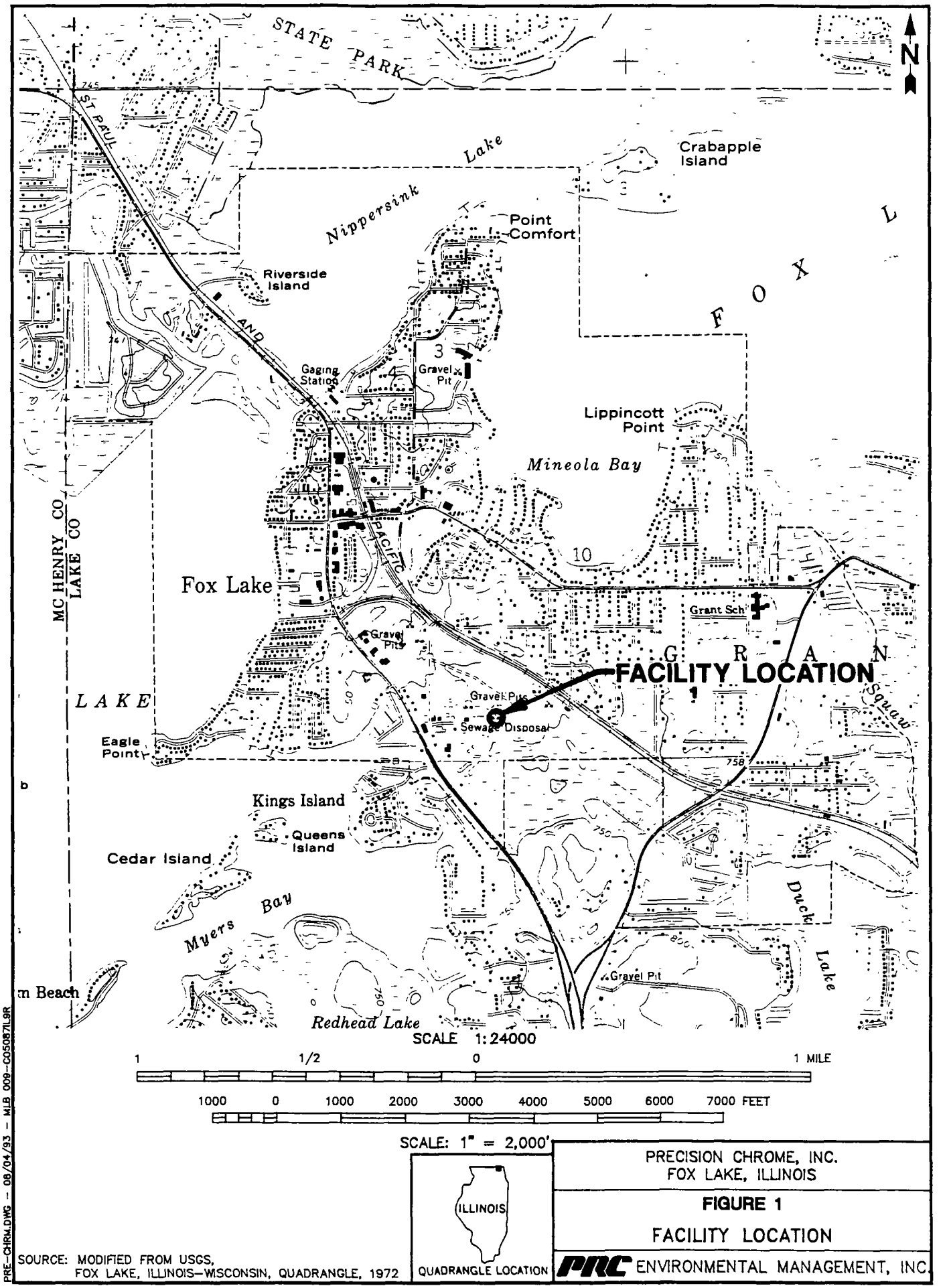
The Precision Chrome facility is located at 105 Precision Road in Fox Lake, Lake County, Illinois. Figure 1 shows the location of the facility in relation to the surrounding topographic features (latitude 42°23'19" N and longitude 88°10'27" W) (USGS 1972). The facility occupies about 3.4 acres in a mixed-use industrial and residential area.

The facility is bordered on the northeast and northwest by the Fox Lake Sanitary District Treatment Plant and on the southwest by a residential property. Southeast of the facility is a former gravel mining and cement manufacturing facility, which was formerly owned by Prairie Materials Services (Baxter & Woodman 1993a).

2.2 FACILITY OPERATIONS

Precision Chrome chrome plates steel shafts used primarily in hydraulic equipment. Precision Chrome purchases steel bar stock and tubing as raw materials. Operations include grinding the steel bar stock and tubing to final diameter, polishing, induction hardening, and bath-type chrome plating. The surface of the bars are cleaned by reverse-current etching in the plating tanks before chrome plating. The facility also has a honing operation to improve the finish on the surface of steel tubing. Honed pieces are usually not chrome plated.

Plating Tanks 1 and 2 measure 30 by 2 by 6 feet deep, and Tank 3 measures 6 by 2 by 14 feet deep (Precision Chrome 1988). The steel plating tanks are located in a concrete pit lined with polyvinyl chloride (PVC) and covered with grating. According to facility representatives, if a leak were to occur in a plating tank, it would be visually noticed by facility personnel inspecting the pits or monitoring the chrome solution level in the plating tanks.


STATE PARK
ST PAUL
Lake
Nippersink
Crabapple Island
Point Comfort
Riverside Island
AND
Gaging Station
Gravel Pit
Lippincott Point
Mineola Bay
FOX
MC HENRY CO
LAKE CO
PACIFIC
Fox Lake
Grant Sch
Gravel Pits
FACILITY LOCATION
GRAN
LAKE
Sewage Disposal
Squaw
Eagle Point
Kings Island
Queens Island
Cedar Island
Myers Bay
Duck Lake
Gravel Pit
Redhead Lake
SCALE 1:24000
1 1/2 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
SCALE: 1" = 2,000'
ILLINOIS
QUADRANGLE LOCATION
PRECISION CHROME, INC.
FOX LAKE, ILLINOIS
FIGURE 1
FACILITY LOCATION
PRC ENVIRONMENTAL MANAGEMENT, INC.
SOURCE: MODIFIED FROM USGS,
FOX LAKE, ILLINOIS–WISCONSIN, QUADRANGLE, 1972
PRE-CHRM.DWG – 08/04/93 – MLB 009–C050871L9R

The plating cycle lasts about 1 hour. After a plating cycle is completed, the plated pieces are held over the plating tanks and manually sprayed with water using a low-pressure hose. The chromic acid concentrations in the plating baths are adjusted by the addition of anhydrous chromium trioxide in flake form, known as chrome flake. Chrome flake is purchased in 100-pound drums and stored on the concrete floor next to the plating tanks along the northern wall of the southern half of the facility building.

Precision Chrome has owned the facility property since 1970 and has operated at the facility since 1971. Precision Chrome employs about 23 people. The original facility building, which was constructed in 1971 through 1972, currently constitutes the southern half of the current facility building. The northern addition was constructed in 1981. The three plating tanks, three grinding machines, raw material storage, and an office are located in the original facility building. Two polishing machines, two honing machines, and an induction hardening machine are located in the northern addition. Gravel parking areas are located along the south and west sides of the original facility building. The facility occupies about 3.4 acres and the facility building occupies about 24,000 square feet.

The facility property was undeveloped when it was purchased by Precision Chrome in 1970. Precision Chrome has owned the facility and performed chrome plating operations at the facility since that time.

2.3 WASTE GENERATION AND MANAGEMENT

This section describes waste generation and management at the Precision Chrome facility. The facility's SWMUs are identified in Table 1. The facility layout, including SWMUs and AOCs, is shown in Figure 2. The facility's waste streams are summarized in Table 2.

During grinding of the steel bar stock and tubing, Precision Chrome generates nonhazardous metal filings sludge. Metal filings are separated from noncontact cooling water by magnetic separators attached to the grinding machines (see Photograph No. 1). The metal filings sludge is collected and stored at the Dumpster Staging Area (SWMU 1). The noncontact cooling water for each grinding machine is recycled in a separate closed loop. Miscellaneous wastes also managed at the Dumpster

TABLE 1

SOLID WASTE MANAGEMENT UNITS

SWMU Number	SWMU Name	RCRA Hazardous Waste Management Unit[a]	Status
1	Dumpster Staging Area	No	Active; manages nonhazardous waste
2	Surface Impoundment	Yes	Active; currently stores hazardous waste; currently undergoing RCRA closure
3	Former Waste Staging Area	No	Inactive; formerly stored hazardous waste for less than 90 days

Note:

[a] A RCRA hazardous waste management unit is one that currently requires or formerly required submittal of a RCRA Part A or Part B permit application.

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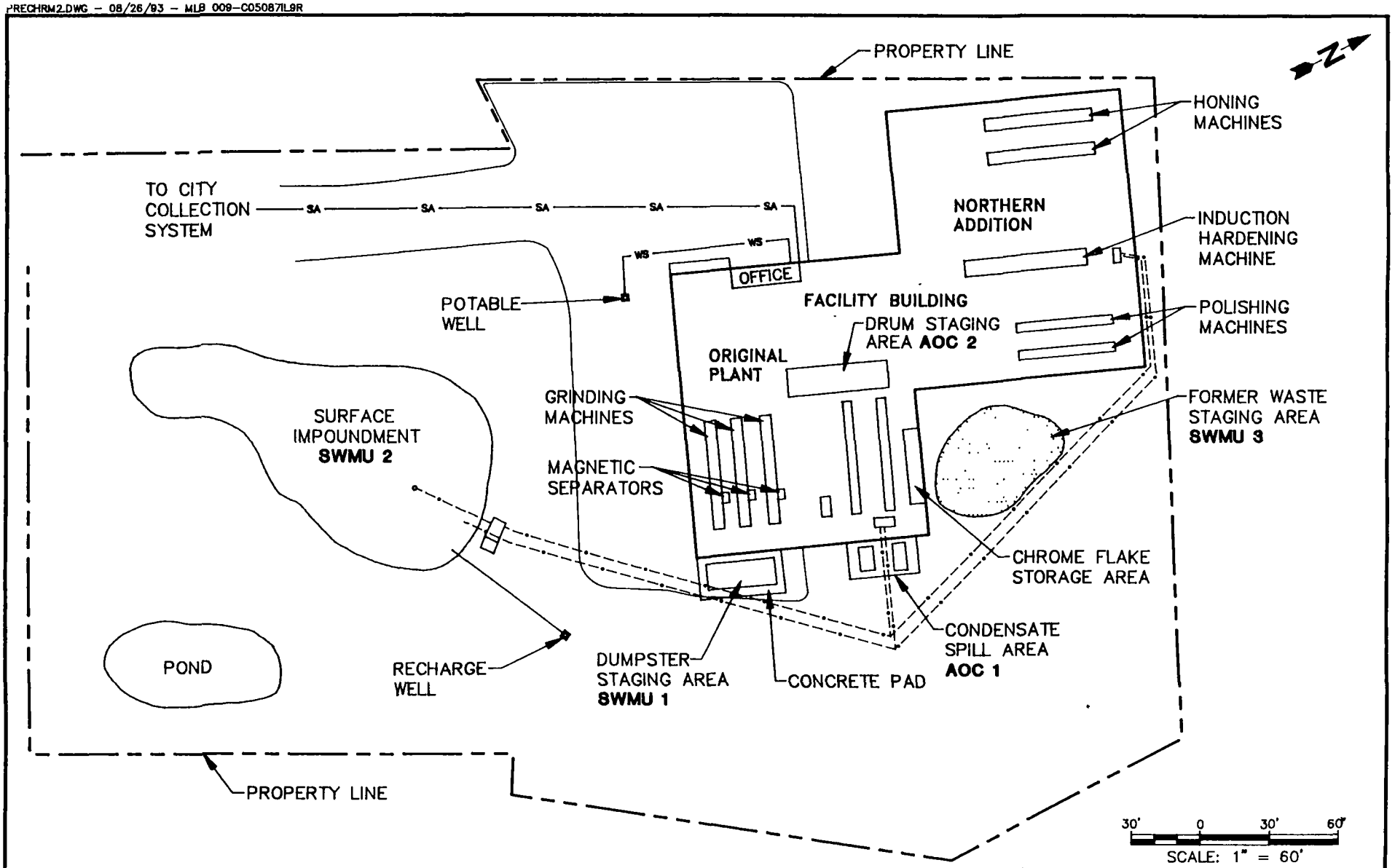

LEGEND

- SA — SANITARY SEWER OR SERVICE
- WS — WATER SERVICE
- NON–CONTACT COOLING WATER RECYCLING LINES

NOTE:
LOCATIONS OF SWMUs, AOCs, AND FACILITY EQUIPMENT ARE APPROXIMATE.

SOURCE: MODIFIED FROM BAXTER & WOODMAN, 1993a

PRECISION CHROME, INC., FACILITY
FOX LAKE, ILLINOIS

FIGURE 2

FACILITY LAYOUT

PRC ENVIRONMENTAL MANAGEMENT, INC.

TABLE 2

SOLID WASTES

Waste/EPA Waste Code[a]	Source	Solid Waste Management Unit
Metal filings sludge/NA	Grinding	SWMU 1
Miscellaneous wastes/NA	Various	SWMU 1
Noncontact cooling water/D007	Cooling of plating tanks and induction hardening machine	SWMU 2
Spent chrome solution/D007	Plating	SWMU 3

Note:

[a] Not applicable (NA) designates nonhazardous waste.

Staging Area (SWMU 1) include used filter paper from the filtration of honing cooling water, used polishing belts, steel bands, cardboard and wood packaging, and paper products. These wastes are picked up for off-site disposal by Waste Management of Lake County, Antioch, Illinois. In 1992, the facility averaged about three pick-ups per month from the 20-cubic-yard dumpster at SWMU 1 (Waste Management 1992).

The facility also manages noncontact cooling water (D007), from cooling plating tanks and the induction hardening machine. The noncontact cooling water is recycled in a closed loop system from the Surface Impoundment (SWMU 2) to the plating tanks and induction hardening machine. According to facility representatives, the noncontact cooling water does not directly contact the chrome solution, and leakage of chrome solution into the recycling lines is prevented by one-way pressure valves. However, the noncontact cooling water was discovered to contain 6.875 parts per million (ppm) of total chromium (IEPA 1986a). According to IEPA inspection reports from 1985 and 1986, the source of chromium in the Surface Impoundment (SWMU 2) was contaminated precipitation runoff from the Condensate Spill Area (AOC 1). According to facility representatives, the source of contamination was past poor housekeeping practices that included staging cans of chrome flake next to the Surface Impoundment (SWMU 3).

Precision Chrome generates spent chrome solution (D007) from plating operations. When the iron content in the chrome solution becomes too high, about one-half of the plating tank volume is pumped into 55-gallon drums. Since January 1987, the drums have been staged at the Drum Staging Area (AOC 2) for 1 to 2 days until they are collected by David Chemical Company (David Chemical) of Chicago, Illinois. Because the spent chrome solution is re-used, it is currently not regulated as a hazardous waste.

In 1982, Precision Chrome generated about 3,000 gallons of spent chrome solution (D007) that was not sold for re-use. This waste was regulated as a hazardous waste because it was disposed off site by Browning-Ferris Industries (BFI) of Waukegan, Illinois (Precision Chrome 1983). Section 2.5 of this report further discusses this waste. The drums of spent chrome solution were staged at the Former Waste Staging Area (SWMU 3) at that time.

2.4 HISTORY OF DOCUMENTED RELEASES

This section discusses the history of documented releases to groundwater, surface water, air, and on-site soils at the facility.

The facility had a history of releases at the Condensate Spill Area (AOC 1). The releases occurred because of leaks in the former mist eliminators' condensate return system, according to facility representatives. In December 1985, IEPA inspectors responding to a complaint of spillage around the facility observed stained soil along the east side of the original plant (IEPA 1985). Analyses of samples collected during the inspection revealed that soil at the Condensate Spill Area (AOC 1) was contaminated with total chromium at 150 ppm. In March 1986, the facility was required to submit a proposal to clean-up the spill area and remove the contaminated soil (IEPA 1986a). In May 1986, IEPA inspectors responding to a reported spill incident again cited releases at the Condensate Spill Area (AOC 1) (IEPA 1986b). Precision Chrome contracted Petro-Chem Processing, Inc., for remedial action, and contaminated soil was removed in May 1986 (IEPA 1987c). Thirty cubic yards of contaminated soil was excavated and disposed at CID Landfill in Calumet City, Illinois (Baxter & Woodman 1993b). However, chromium contamination was detected in soil samples collected at AOC 1 during an IEPA inspection in October 1992 (IEPA 1993b; PRC 1993d).

In 1987, IEPA sampled groundwater from the 20-foot-deep recharge well next to the Surface Impoundment (SWMU 2). Total chromium was found in the groundwater at 8.375 ppm (IEPA 1987c). The chromium was most likely released to groundwater through leaching of contaminated water from the Surface Impoundment (SWMU 2).

In January 1987, Precision Chrome reported a spill of about 200 gallons of chromic acid at the Former Waste Staging Area (SWMU 3) (Baxter & Woodman 1993b; IESDA 1987). According to facility representatives, the spill occurred when a hose slipped out of a drum during transferral of spent chrome solution from the plating tanks. Thirty cubic yards of contaminated soil was excavated and landfilled at the BFI Winthrop Harbor site (Baxter & Woodman 1993b; IEPA 1987a). However, chromium contamination was detected in soil samples collected at SWMU 3 during an IEPA inspection in 1992 (IEPA 1993b; PRC 1993d).

2.5 REGULATORY HISTORY

On August 15, 1980, Precision Chrome submitted a Notification of Hazardous Waste Activity form to EPA as a generator of hazardous waste (Precision Chrome 1980). A RCRA Part A permit application was not submitted by Precision Chrome.

In 1981, EPA sent a letter to Precision Chrome stating that the spent chrome solution (D007) generated by the facility is not subject to hazardous waste regulations because the facility sold it to A-Chem Corporation (A-Chem). A-Chem met special regulations at the time for the re-use of hazardous waste (EPA 1981). In 1982, BFI collected 3,000 gallons of spent chrome solution from Precision Chrome for disposal, which required Precision Chrome to file a Generator Annual Hazardous Waste Report (GAHWR) (Precision Chrome 1983). The facility returned to selling all of the spent chrome solution to A-Chem and reported no waste disposed in GAHWRs filed for 1983 and 1984 (Precision Chrome 1984; Precision Chrome 1985a).

In 1985, Precision Chrome requested that the facility be deleted from the hazardous waste facility list (Precision Chrome 1985b), and EPA granted the facility the status of a nonhandler of hazardous waste on November 12, 1985 (EPA 1985). Also, in 1985, the facility switched from selling the spent chrome solution to A-Chem to selling it to David Chemical. David Chemical adds chrome flake purchased from Precision Chrome to the spent chrome solution to raise the chrome level. David Chemical also adds nitric acid and sulfuric acid to make an iridescent chromate solution. David Chemical then dips cadmium plated pieces in this solution to provide a chrome finish (PRC 1993a).

In December 1985, IEPA sampled and analyzed the noncontact cooling water (D007) discharged into the Surface Impoundment (SWMU 2), and total chromium was detected at 6.875 ppm (IEPA 1986a). According to facility representatives, IEPA advised Precision Chrome to add sodium bisulfite to the Surface Impoundment (SWMU 2) to lower the hexavalent chromium concentration. The facility added the sodium bisulfite in July 1986. The actual date that the facility's status was changed and the exact reason for the change could not be determined, but by September 1987, the time of the next documented inspection following the addition of the sodium bisulfate, the facility had the status of a treatment facility (IEPA 1987b). Because of the facility's revised status, IEPA required in 1992 that the Surface Impoundment (SWMU 2) undergo RCRA closure (IEPA 1992a). The facility submitted a

closure plan in December 1992 (Precision Chrome 1992). The closure plan included a schedule for submittal of plans for initial sampling activities and remedial activities. A letter from IEPA dated January 27, 1993, approved the closure plan subject to several conditions and modifications and changed the status of the Surface Impoundment (SWMU 2) from a treatment unit to a storage unit (IEPA 1993a). The conditions included requirements for sampling, reporting, and waste disposal if the selected remedial action is excavation and off-site disposal, and requirements for notifying IEPA if an alternative remedial action is selected. At the time of the VSI, only collection and analyses of samples had been conducted as part of closure activities.

In 1985, IEPA conducted a RCRA Generator Inspection in response to a complaint by the Lake County Health Department (LCHD) of spillage around the facility. During the inspection, stained soils were observed along the east side of the original facility building, and samples were collected. As a result of sample analyses, IEPA requested that the facility submit plans to clean up the contaminated soil and to sample and monitor contaminant levels in the recharge well and Surface Impoundment (SWMU 2) (IEPA 1986a). Section 2.4 contains a more detailed discussion of subsequent corrective actions taken.

IEPA conducted RCRA compliance evaluation inspections in January, August, and November of 1992. Violations from the January inspection included failure to submit a closure plan and closure plan cost estimate for the Surface Impoundment (SWMU 2) (IEPA 1992a). Violations from the August inspection included the facility's failure to implement a groundwater monitoring program and failure to install, operate, and maintain a groundwater monitoring system (IEPA 1992b). No violations were noted during the November inspection (IEPA 1992c).

IEPA conducted sampling inspections in 1986 and 1987. In 1986, IEPA sampled two ponds on private residential property south of the facility. No total or hexavalent chromium contamination was detected from the analysis of the pond water samples. In 1987, IEPA sampled recharge well water and noncontact cooling water discharges into the Surface Impoundment (SWMU 2). Sample analyses revealed total chromium contamination at concentrations of 8.375 and 0.405 ppm for recharge well water and noncontact cooling water discharges, respectively (IEPA 1987b).

The facility is required to have operating air permits. The facility is currently regulated under Permit No. 097020AAK issued by the IEPA Division of Air Pollution Control. The facility is permitted to operate three plating tanks controlled by two mist eliminators, five polishers with dust collectors, four grinders with two electrostatic precipitators, and an oil mist eliminator (IEPA 1991a). The facility has not violated its air permits (IEPA 1991b). The facility has no history of odor complaints from area residents.

The facility does not have any National Pollutant Discharge Elimination System (NPDES) permits (Precision Chrome 1987). The facility discharges only sanitary wastewater and no process water to the sewer system. In 1987, EPA conducted a Reconnaissance Inspection and verified that no discharge at the facility requires regulation (EPA 1987). According to facility representatives, the facility never had any underground storage tanks.

In October 1992, IEPA conducted a CERCLA screening site inspection and collected several samples of different media. Chromium was detected in the following samples: two soil samples collected at the Condensate Spill Area (AOC 1) at 523 and 141 ppm; two soil samples collected at the Former Waste Staging Area (SWMU 3) at 146 and 117 ppm; one soil sample collected adjacent the south wall of the original facility building at 182 ppm; one sediment sample collected from the Surface Impoundment (SWMU 2) at 525 ppm; one water sample collected from the noncontact cooling water (D007) discharge; and one sediment sample from the naturally occurring pond at the south end of the facility at 1140 ppm (IEPA 1993b; PRC 1993d).

2.6 ENVIRONMENTAL SETTING

This section describes the climate; flood plain and surface water; geology and soils; and groundwater in the vicinity of the facility.

2.6.1 Climate

The climate in Lake County is both temperate and continental, characterized by frequent changes in temperature, humidity, cloudiness, and wind direction (USDA 1970). The average daily temperature is 50 °F. The lowest average daily temperature is 15 °F in January. The highest average daily temperature is 83 °F in July (USDA 1970).

The total annual average precipitation is 32.5 inches (USDA 1970). The mean annual lake evaporation for the area is about 30 inches (DOC 1968). The 1-year, 24-hour maximum rainfall is about 2.5 inches (DOC 1963).

The prevailing wind is from the south. Average wind speed is highest in February at 14 miles per hour (NOAA 1990).

2.6.2 Flood Plain and Surface Water

The Precision Chrome Company is located outside of the 500-year flood plain (FEMA 1986). The nearest surface water body, Myers Bay in Pistakee Lake, is located about 0.5 mile west of the facility and is used for recreational purposes. Pistakee Lake is part of the Chain O' Lakes (USGS 1972). All of these lakes and other bodies of water in the extreme western part of Lake County drain towards the Fox River Basin, which eventually drains into the Mississippi River (USDA 1970).

On-site surface water flows to the Surface Impoundment (SWMU 2) in the southeast corner of the facility property. The water level in SWMU 3 can be maintained using a 20-foot-deep recharge well; however, the well is used rarely and only during dry weather. On-site surface water also flows off site from the facility building through a sanitary sewer line that eventually flows into the Village of Fox Lake municipal sewer system (Baxter & Woodman 1993a). The facility's industrial sewer is not connected to the municipal sewer lines.

Other surface water bodies in the area include Duck Lake, Fox Lake, and Squaw Creek. All of these bodies of water are within 1 mile of the facility and all are used primarily for recreational purposes (USGS 1972).

2.6.3 Geology and Soils

The facility lies in the western part of Lake County, which is part of the Valparaiso Morainic System, a broad series of ridges with numerous undrained depressions (ISGS 1973). The facility is located on gently sloping lands resulting from the moraines. Boring logs were developed during the installation of three on-site groundwater monitoring wells. These logs report the soil in the facility area as fine- to medium-grained sands with gravel traces to approximately 50 feet below ground surface (bgs). A hard, grey, silty clay is present below the sands (Baxter & Woodman 1993a).

The soils in the area are mainly glacial till. They are classified as both the Batavia Member of the Henry Formation and Grayslake Peat. The Batavia Member is composed of clean sand and gravel deposited by glacial meltwaters. Glacial drift aquifers are very productive in western Lake County. The Batavia Member has a high water table, medium to high natural water content, good permeablilty, and is very gently to gently sloping. Grayslake Peat consists of peat and muck, and is rich in organic matter. The Grayslake Peat has a high water table, high natural water content, poor permeability, and is depressional to nearly level (USDA 1970).

Regional geologic data is presented here because little site-specific geologic information is available. Under the glacial deposits lies bedrock consisting first of Silurian-aged dolomite at a depth of approximately 50 feet bgs. The dolomite in the area is less than 50 feet thick. Because of its lack of thickness, the dolomite is a poor aquifer with small yields. The dolomite is underlain by approximately 250 feet of Maquoketan Formation Shale, 300 feet of Galena-Platteville Formation dolomite, and 250 feet of Glenwood-St. Peter Formation sandstone, all of the Ordovician Period. Various formations consisting of shale, siltstone, dolomite, and sandstone are present to a depth of approximately 1,300 feet below sea level. The deepest 600 feet of these formations is sandstone of the Mt. Simon Formation, and this sandstone forms most of the deep sandstone aquifers in the area (ISGS 1973).

2.6.4 Groundwater

In Lake County, groundwater is obtained from five major aquifer systems. These aquifers consists of the glacial drift aquifer system, the shallow dolomite aquifer system, and three deep sandstone aquifer systems. Sand and gravel deposits in the glacial drift are the main aquifers in the area and are capable of producing large quantities of water. The thickness varies throughout Lake County, but in the western section of the county, two of the glacial drift aquifers are not separated by till. These aquifers are very permeable, and they have the greatest potential for development and productivity of any of the drift aquifers in Lake County (ISGS 1973).

The shallow dolomite aquifers are 75 to 200 feet bgs. The most productive part of the aquifers is the upper third, which has many fractures and crevices. Generally, the dolomite aquifers in western Lake County are less than 50 feet thick and therefore have only small yields (ISGS 1973).

All of the sandstone aquifers occur at great depths. Wells screened in the deep sandstone aquifers are generally only constructed by municipalities and industries. The Ironton-Galesville Sandstone aquifer is the most productive of the three sandstone aquifers. It yields 1,000 gallons or more per minute (ISGS 1973).

Near the facility, groundwater is present at about 8 to 15 feet bgs. Two water supply wells are located on site. The potable well is about 120 feet deep, and the surface impoundment recharge well is about 30 feet deep. The potable well was in operation at the time of the inspection, but was due to be closed within a few weeks after the inspection, when the facility connects with the municipal water system.

The Village of Fox Lake receives its municipal water from a groundwater well that is 100 feet deep. The well is located within 0.35 mile to the north-northwest of the facility on Industrial Avenue (PRC 1993b). Two residential wells are located generally upgradient of the facility. One well is on Hickory Avenue about 0.5 to the northeast, and another well is on Ridgeland Avenue about 0.35 mile to the north (PRC 1993c).

2.7 RECEPTORS

The facility occupies 3.4 acres in a mixed-use industrial and residential area in Fox Lake, Illinois. Fox Lake has a population of about 7,478.

The facility is bordered on the northeast and northwest by the Fox Lake Sanitary District Treatment Plant, on the southwest by a residential property. Southeast of the facility is a former gravel mining and cement manufacturing facility. The nearest residential area is located about 700 feet southwest of the facility. The nearest school, Grant School, is located about 1 mile northeast of the facility. Security is provided primarily by staff personnel during working hours, and backup security is provided by a continuously monitored alarm system. The facility is surrounded by a chain-link fence.

The nearest surface water body, Myers Bay in Pistakee Lake, is located 0.5 mile west of the facility and is used for recreational purposes. Other surface water bodies include Mineola Bay in Fox Lake approximately 0.7 mile north, Squaw Creek approximately 1 mile east, and Pistakee Lake approximately 1.25 miles west. The Village of Fox Lake obtains its drinking water from a well located within 0.35 mile north-northwest of the facility.

Groundwater is used as an industrial, municipal, and private water supply. The nearest potable well is located on site; however, the well is scheduled to be abandoned. The nearest industrial well is also located on site. The Village of Fox Lake municipal well is located about 0.35 mile to the north-northwest of the facility, and two residential wells are located 0.35 north and 0.5 mile northeast of the facility. These wells are generally upgradient of the facility. Groundwater flow is generally west-southwest toward Myers Bay and Pistakee Lake. However, seasonal variations in water levels may cause changes in the direction of groundwater flow (Baxter & Woodman 1993a).

Sensitive environments are not located on site. The two nearest sensitive environments are wetland complexes. One is located about 800 feet southeast of the facility and is classified as palustrine, emergent, and seasonal. The other wetland is located about 500 feet west of the facility and is classified as palustrine, scrub-shrub, broadleaf deciduous, and seasonal. Other wetlands are present within 0.25 mile of the facility. These wetlands include a palustrine, open water, semipermanent wetland; a palustrine, open water, nontidal, permanent, excavated wetland; and a palustrine, forested,

broadleaf deciduous, temporary wetland (USDOI 1981). No other sensitive environments are present in the area of the facility.

3.0 SOLID WASTE MANAGEMENT UNITS

This section describes the three SWMUs identified during the PA/VSI. The following information is presented for each SWMU: description of the unit, dates of operation, wastes managed, release controls, history of documented releases, and PRC's observations. Figure 2 shows the SWMU locations.

SWMU 1 **Dumpster Staging Area**

Unit Description: This unit consists of an unlined steel dumpster on a concrete pad. The dumpster has a capacity of 20 cubic yards. The unit is located outdoors adjacent to the southeast side of the original facility building. Drainage and runoff from this unit flows toward the Surface Impoundment (SWMU 2).

Date of Startup: This unit began operation in 1971. This startup date is an estimate by facility representatives based on the date the facility began operations.

Date of Closure: This unit is currently active.

Wastes Managed: This unit manages the following nonhazardous wastes: metal filings sludge, used filter paper, used polishing belts, steel bands, cardboard and wood packaging, and paper products. The contents of the dumpster are picked up for off-site disposal about three times per month by Waste Management of Lake County, Antioch, Illinois.

Release Controls: This unit includes a concrete pad and plastic panels nailed to wooden frames to keep rain water out of the dumpster.

History of Documented Releases: No releases from this unit have been documented.

Observations:	During the VSI, the dumpster was less than half-full and contained miscellaneous wastes including steel bands, used polishing belts, and cardboard packaging. PRC noted no evidence of release (see Photograph No. 2).
SWMU 2	**Surface Impoundment**
Unit Description:	This unit is located outdoors about 40 feet south of the facility building. The unit is unlined and constructed of native soil. The unit has a capacity of about 350,000 gallons and is naturally occurring, according to facility representatives. The Surface Impoundment is used to store noncontact cooling water (D007) from the plating tanks and induction hardening machine, which is recycled in a closed loop. Drainage and runoff on the facility property flows overland to this unit. Groundwater is pumped to the unit by a 20-foot-deep recharge well, which is used rarely and only during dry weather.
Date of Startup:	This unit began operation in 1971 when the facility began operations. According to facility representatives, the Surface Impoundment is naturally occurring and already existed when Precision Chrome acquired the property.
Date of Closure:	This unit is currently active. IEPA approved a closure plan for the unit that requires closure activities to be completed by August 1, 1993. At the time of the VSI, closure sampling had been completed, but a closure method had not yet been decided upon or implemented.
Wastes Managed:	This unit manages noncontact cooling water (D007) contaminated with chromium. This unit also collects drainage and runoff from the facility. The chromium in the Surface Impoundment is suspected to be from runoff contaminated by contact with spills from the

Condensate Spill Area (AOC 1) or with drums of chrome flake formerly staged next to the Surface Impoundment.

Release Controls: This unit has high banks and naturally maintains a fairly constant level, which prevents overflowing.

History of Documented Releases: Analytical results of groundwater samples collected from the recharge well next to this unit indicated elevated levels of total chromium at 8.375 ppm.

Observations: During the VSI, the unit contained turbid greenish-brown water. The water line appeared to be at a normal level. The unit was unlined and constructed of native soil. PRC observed large fish swimming in the Surface Impoundment and a lot of vegetation growing in and along its shore (see Photograph No. 3).

SWMU 3 **Former Waste Staging Area**

Unit Description: This unit consisted of drums staged on native soil. The unit was located outdoors northeast of the facility building, but the exact location could not be determined. This unit was used to store spent chrome solution (D007). Exact dimensions of this unit are not available. Drainage from the unit either seeped into on-site soil or flowed with surface runoff to the Surface Impoundment (SWMU 2).

Date of Startup: This unit began operation in 1971. This startup date is an estimate based on the date the facility began operations.

Date of Closure: Precision Chrome stopped using this unit in 1987 when contaminated soil was excavated from the unit and disposed off site. At that time,

	the facility began its current practice of staging the drums at the Drum Staging Area (AOC 2).
Wastes Managed:	This unit managed spent chrome solution (D007).
Release Controls:	This unit had no release controls.
History of Documented Releases:	Approximately 200 gallons of spent chrome solution (D007) was released from this unit in 1987. Thirty cubic yards of contaminated soil was excavated and codisposed of as a hazardous waste at BFI's Winthrop Harbor Landfill facility (Baxter & Woodman 1993b; IEPA 1987b). However, chromium contamination was detected in soil samples collected in October, 1992.
Observations:	During the VSI, PRC observed a grassy area with no signs of stressed vegetation (see Photograph No. 4).

4.0 AREAS OF CONCERN

PRC identified two AOCs during the PA/VSI. These AOCs are discussed below; their locations are shown in Figure 2.

AOC 1 Condensate Spill Area

This area consists of on-site soil adjacent to the east side of the original facility building. This soil was contaminated by releases of condensate from the former mist eliminators' recycling lines. The former mist eliminators condensed mist drawn from the plating tanks and recycled the condensate back to the plating tanks. During an emergency response inspection in 1985, IEPA observed stained soil in the area of this unit and collected soil samples, which were contaminated with total chromium at 150 ppm (IEPA 1986a). During another emergency response inspection on May 14, 1986, IEPA again discovered releases from this unit. Thirty cubic yards of contaminated soil was removed by a remedial contractor on May 20, 1986. The soil was codisposed of as a hazardous waste at CID Landfill in Calumet City, Illinois (Baxter & Woodman 1993b; IEPA 1986d; IEPA 1987c). Because chromium contamination was detected in soil samples collected in this area in 1992, the area is considered an AOC. During the VSI, PRC observed that the former mist eliminators had been replaced by new mist eliminators, which are enclosed and situated on a concrete pad (see Photograph No. 5).

AOC 2 Drum Staging Area

This is an indoor, concrete-floored area in the original facility building. This area is used to store drums of chrome plating solution that is spent because the iron content has become too high. The spent chrome solution is removed from the plating tanks and stored in drums staged in this area for 1 to 2 days until the drums are picked up by David Chemical. The spent chrome solution is currently not regulated as a hazardous waste because EPA determined that the waste was exempt in 1981. At that time, the spent chrome solution was sold to A-Chem, which met special regulations for used, re-used, recycled, or reclaimed waste under 40 CFR 261 (EPA 1981). Precision Chrome disposed of the spent chrome solution in 1982 instead of selling it to A-Chem, and the waste became regulated as a hazardous waste (Precision Chrome 1983). The facility subsequently returned to selling the spent chrome solution to A-Chem and EPA again exempted the waste from hazardous waste regulations in 1985 (EPA 1985). Since that time, Precision Chrome has switched from selling the spent chrome solution to A-Chem to selling it to David Chemical. There is no documentation of EPA, IEPA, or any other agency investigating David Chemical's management of this waste to confirm that the regulatory exemption is still applicable. According to David Chemical representatives, David Chemical adds chrome flake, which is also purchased from Precision Chrome, to the spent chrome solution to raise the chrome level. David Chemical then adds sulfuric acid and nitric acid to the solution to make an iridescent chromate solution. Cadmium-plated parts are dipped into this solution to give them a chrome finish (PRC 1993a). Because the spent chrome solution is a spent material that is reclaimed, it apparently fits the definition of a solid waste under 40 CFR 261.1(c)(1), 261.1(c)(4), and 261.2(c)(3), and the definition of a hazardous waste under 40 CFR 261.3. Because it is unclear how the waste managed at this unit should be regulated, this area is an AOC. No photographs were taken of AOC 2 because it was not storing waste at the time of the VSI.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The PA/VSI identified three SWMUs and two AOCs at the Precision Chrome facility. Background information on the facility's location; operations; waste generating processes and waste management practices; history of documented releases; regulatory history; environmental setting; and receptors is presented in Section 2.0. SWMU-specific information, such as the unit's description, dates of operation, wastes managed, release controls, history of documented releases, and observed condition, is presented in Section 3.0. AOCs are discussed in Section 4.0. Following are PRC's conclusions and recommendations for each SWMU and AOC. Table 3, located at the end of this section, summarizes the SWMUs and AOCs at the facility and the recommended further actions.

SWMU 1 **Dumpster Staging Area**

Conclusions: The potential for release to groundwater, surface water, on-site soils, and air is low. This unit consists of a concrete pad and a 20-cubic-yard steel dumpster with a plastic lid. This unit is used to collect nonhazardous wastes including metal filings sludge, used filter paper, used polishing belts, steel bands, cardboard and wood packaging, and paper products. No releases from this unit have been documented.

Recommendations: PRC recommends no further action for this SWMU at this time.

SWMU 2 **Surface Impoundment**

Conclusions: This unit consists of a surface impoundment used to store noncontact cooling water, which is recycled to facility operations in a closed loop system. One-way pressure valves prevent chrome solution from leaking into the cooling water lines, but the noncontact cooling water (D007) is contaminated with chrome. The chrome is suspected to have entered the Surface Impoundment from run-off that contacted either contaminated soil at the Condensate Spill Area (AOC 1) or drums of chrome flake formerly staged next to the Surface Impoundment. IEPA has approved a closure plan for this unit, which requires

closure activities to be completed by August 1, 1993 (IEPA 1993a). Sampling has been completed, but the closure method has not yet been decided upon. The potential for release to environmental media is described below.

On-site soils: The potential for release to on-site surface soils is low because the surface impoundment has high banks and naturally maintains a fairly constant level. However, chromium contamination in sediment at this unit has been documented.

Groundwater: A release to groundwater has occurred. Chromium contamination has been found at 8.375 ppm in groundwater samples collected from the recharge well, which is located only about 5 feet from the Surface Impoundment.

The potential for release to surface water and air is low. The surface impoundment does not discharge to surface water, and it is 0.5 mile from the nearest surface water body. Also, the only known contaminant in this unit is chromium, which is nonvolatile contaminant.

Recommendations: PRC recommends that the facility continue with closure activities in compliance with the approved closure plan.

SWMU 3 **Former Waste Staging Area**

Conclusions: This unit consisted of drums staged on native soil located outdoors northeast of the facility building. The exact location of the former SWMU is unknown. The unit was used to store spent chrome solution (D007). This unit stopped being used to store spent chrome solution in 1987 when contaminated soil from the area was excavated and disposed off site and the drums began being stored at the Drum Staging Area (AOC 2).

A release to on-site soils has occurred at the Former Waste Staging Area. Approximately 200 gallons of spent chrome solution (D007) was spilled in this area in 1987. Thirty cubic yards of contaminated soil was excavated and disposed off site. However, soil samples collected in October 1992 revealed that soil contamination still exists in this area. The potential for remaining chromium in the soil to be released to groundwater through infiltration is moderate. The potential for release to surface water and air is low because all contamination is subsurface and chromium is a nonvolatile contaminant.

Recommendations: PRC recommends that Precision Chrome sample to determine the extent of soil contamination at the SWMU and conduct additional remediation if necessary.

AOC 1 **Condensate Spill Area**

Conclusions: This area consists of on-site soil adjacent to the east side of the original facility building. Releases of chrome solution condensate have occurred from this area. The potential for release to environmental media from this unit is discussed below. Chromium was detected in two soil samples at 523 and 141 ppm.

On-site soils: Releases of chrome solution condensate have occurred at this area. Soil samples collected from this area in 1985 were contaminated with total chromium at 150 ppm. Thirty cubic yards of contaminated soil was excavated for off-site disposal in May 1986. However, based on analyses of soil samples collected in October 1992, soil contamination still exists in this area.

Groundwater: The potential for release is moderate. Chromium in the soil could percolate through the soil and contaminate groundwater.

The potential for release to surface water and air is low because all contamination is subsurface and chromium is a nonvolatile contaminant.

Recommendations: PRC recommends that Precision Chrome sample to determine the extent of soil contamination at the AOC and conduct additional remediation if necessary.

AOC 2 **Drum Staging Area**

Conclusions: This is an indoor concrete-floored area that is used to store drums of spent chrome plating solution. The spent chrome plating solution is currently not regulated as a hazardous waste because of an exemption granted by EPA in 1981 and reaffirmed in 1985. Since that time, the off-site management of this material has changed and the regulations on which the exemption was based no longer seem applicable. No releases from this area have been documented. The potential for release to on-site soils, groundwater, surface water, and air is low because this AOC is an indoor concrete-floored area.

Recommendations: PRC recommends that the management and regulatory status of the material stored in this area be investigated. If the material is determined to be a waste, it should be managed appropriately according to applicable regulations, and this AOC should be considered a SWMU.

TABLE 3

SWMU AND AOC SUMMARY

SWMU	Dates of Operation	Evidence of Release	Recommended Further Action
1. Dumpster Staging Area	1971 to present	None	No further action
2. Surface Impoundment	1971 to present	Analysis of groundwater samples collected from a well next to this unit indicates elevated total chromium concentrations.	Continue with closure activities in compliance with the approved closure plan
3. Former Waste Staging Area	1971 to 1987	The facility reported a spill of about 200 gallons of spent chrome solution, and analysis of soil samples indicates chromium contamination.	Assess soil contamination and conduct additional remediation if necessary

AOC	Dates of Operation	Evidence of Release	Recommended Further Action
1. Condensate Spill Area	1971 to 1991	Stained soils were discovered in this area, and analysis of soil samples indicates chromium contamination.	Assess soil contamination and conduct additional remediation if necessary
2. Drum Staging Area	1987 to present	None	Investigate management and regulatory status of the waste stored in this area

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APPENDIX A

EPA PRELIMINARY ASSESSMENT FORM 2070-12

(One Page)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IL	IL D089062871

II. SITE NAME AND LOCATION

01 SITE NAME *(Legal, common, or descriptive name of site)*	02 STREET, ROUTE NO. OR SPECIFIC LOCATION IDENTIFIER				
Precision Chrome, Inc. (Precision Chrome)	105 Precision Road				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
Fox Lake	IL	60020	Lake		
09 COORDINATES: LATITUDE 42°23'19" N	**LONGITUDE** 88°10'27" W				

10 DIRECTIONS TO SITE *(Starting from nearest public road)*

Travel Route 12 (Rand Road) northwest to the second Frontage Road exit in Fox Lake, which is Sayton Road. Turn right and then left following Sayton Road to Honing Road. Turn right and travel to the end of Honing Road to Precision Road. Turn left on Precision Road. The facility is located at the end of the road at 105 Precision Road.

III. RESPONSIBLE PARTIES

01 OWNER *(if known)*	02 STREET *(Business, mailing residential)*		
Precision Chrome	105 Precision Road		
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 TELEPHONE NUMBER**
Fox Lake	IL	60020	(708) 587-1515
07 OPERATOR *(If known and different from owner)*	**08 STREET** *(Business, mailing, residential)*		
09 CITY	**10 STATE**	**11 ZIP CODE**	**12 TELEPHONE NUMBER**

13 TYPE OF OWNERSHIP *(Check one)*

☒ A. PRIVATE ☐ B. FEDERAL: _____ (Agency Name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL

☐ F OTHER _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE *(Check all that apply)*

☒ A RCRA 3010 DATE RECEIVED: 08 /15 /80 (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE *(CERCLA 103 c)* DATE RECEIVED: / / (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

☒ YES DATE 07/15/93

☐ NO

BY *(Check all that apply)*

☐ A. EPA ☒ B. EPA CONTRACTOR ☐ C. STATE ☐ D. OTHER CONTRACTOR

☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ *(Specify)*

CONTRACTOR NAME(S) PRC Environmental Management, Inc. (PRC)

02 SITE STATUS *(Check one)*

☒ A. ACTIVE ☐ B. INACTIVE ☐ C.UNKNOWN

03 YEARS OF OPERATION

1970 | _____ (BEGINNING YEAR ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Spent chrome plating solution (D007) in drums in the facility building; and chrome-contaminated noncontact cooling water (D007) in a surface impoundment.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

On-site groundwater from the shallow aquifer is contaminated with chromium suspected to have leached from the surface impoundment. Closure activities for the surface impoundment have begun.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION *(Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents.)*

☐ A HIGH *(Inspection required promptly)* ☐ B MEDIUM *(Inspection required)* ☒ C LOW *(Inspect on time-available basis)* ☐ D. NONE *(No further action needed; complete current disposition form)*

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF *(Agency/Organization)*			03 TELEPHONE NUMBER
Kevin Pierard	U.S. EPA			(312) 886-4448
04 PERSON RESPONSIBLE FOR ASSESSMENT	**05 AGENCY**	**06 ORGANIZATION**	**07 TELEPHONE NUMBER**	**08 DATE**
Timothy J. Schlichting		PRC	(312) 856-8700	07/14/93 (MONTH DAY YEAR)

APPENDIX B

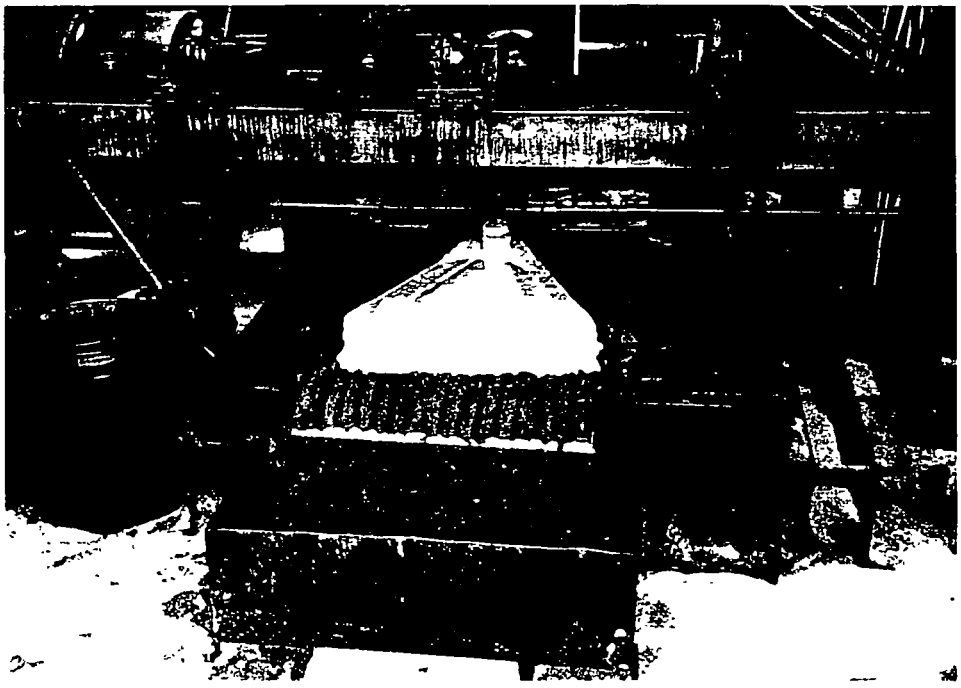
VISUAL SITE INSPECTION SUMMARY AND PHOTOGRAPHS

(Four Pages)

VISUAL SITE INSPECTION SUMMARY

Precision Chrome, Inc. (Precision Chrome)
105 Precision Road
Fox Lake, Illinois 60020
ILD 089 062 871

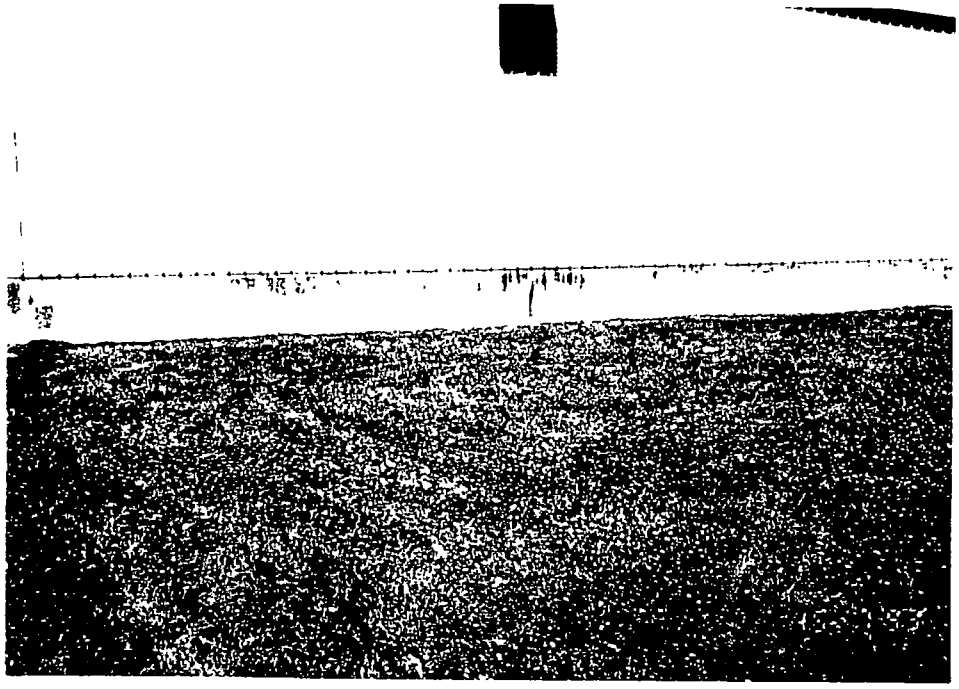
Date:	July 15, 1993
Primary Facility Representative:	Don Hjortland, Precision Chrome, President
Representative Telephone No.:	(708) 587-1515
Additional Facility Representatives:	Tom Allen, Precision Chrome, Plant Manager Steven Zehner, Baxter & Woodman, Environmental Engineer
Inspection Team:	Cathy M. Collins, PRC Environmental Management, Inc. (PRC) Timothy J. Schlichting, PRC
Photographers:	Cathy M. Collins and Timothy J. Schlichting
Weather Conditions:	Sunny; calm; 80 °F
Summary of Activities:	The visual site inspection (VSI) began at 10:00 a.m. with an introductory meeting. The inspection team explained the purpose of the VSI and the agenda for the visit. Facility representatives then discussed the facility's past and current operations, solid wastes generated, and release history. Facility representatives provided the inspection team with copies of requested documents. The VSI tour began at 11:10 a.m. During the VSI tour, PRC inspected operations and machinery, including the grinding machines, plating tanks, induction hardening machine, and honing machine. PRC also inspected the following solid waste management units (SWMU) and area of concern (AOC): the Dumpster Staging Area (SWMU 1), the Surface Impoundment (SWMU 2), the Former Waste Staging Area (SWMU 3), the Condensate Spill Area (AOC 1), and the Drum Staging Area (AOC 2). The tour concluded at 12:00 p.m., after which the inspection team held an exit meeting with facility representatives. The VSI was completed and the inspection team left the facility at 12:20 p.m.



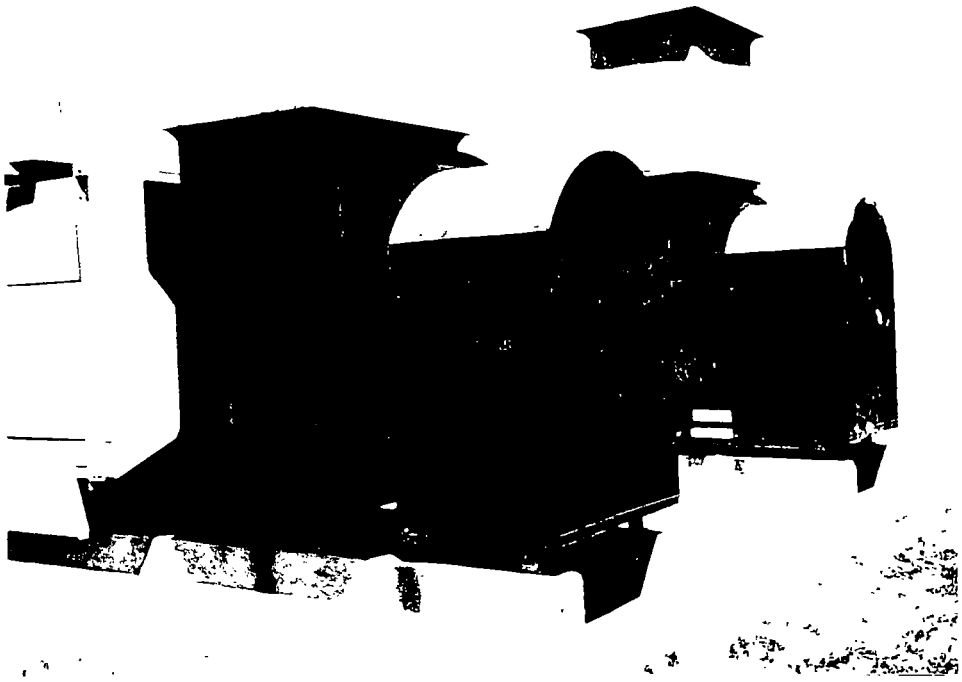
Photograph No. 1 Location: Magnetic Separator
Orientation: South Date: 7/15/93
Description: Magnetic separator on grinding machine separating metal filings sludge from noncontact cooling water

Photograph No. 2 Location: SWMU 1
Orientation: North Date: 7/15/93
Description: Dumpster Staging Area with cover on concrete pad

Photograph No. 3 Location: SWMU 3
Orientation: South Date 7/15/93
Description: Surface Impoundment with vegetation, observation platform, and buoy



Photograph No. 4 Location: AOC 1
Orientation: East Date: 7/15/93
Description: Grassy area where chrome solution spill occurred



Photograph No. 5 Location: SWMU 5
Orientation: Northeast Date: 7/15/93
Description: New enclosed mist eliminators on a concrete pad; Former Mist Eliminators and soil contaminated from condensate releases were also located here

APPENDIX C

VISUAL SITE INSPECTION FIELD NOTES

(Nine Pages)

PRECISION
CHROME, INC
July 15, 1993
STEVE ZEHNER
TOM ALLEN
DON HJORTLAND, PRES
3.4 acres
24,000 sq. ft.
23 employees
2 x 10 hour shifts

STEEL Bars
ground
Polished
Chrome plated
they also have a
honing operation
for tubing

do not clean before plating
Reverse current
etch in
Chrome tank
reverse current to
clean the surface
of the bar.

Uses chromic acid
DAVID CHEMICAL
is Purchased
4650 W. 5TH AVE
CHICAGO IL.
About 46 x 55-gal
every two months
David Chemical
adds Chromium
to solution
to improve quality

1-2 20 C.Y. Roll off boxes every two weeks to Waste Management of Lake City in Antioch Illinois

Scrap abrasive belts, steel bands, paper products, grinding steel rods and from Packaging scrap

Two previous releases have occurred.

Chrome in pond was probably caused by a leak in storage practices

System is set up such that a leak in the cooling line would cause a leak into the chrome tanks

Chrome levels have been decreasing.

elevated Cr Pb
& manganese levels
have been found
during closure
ALL samples .1 ppm
10 + 20 ppm for
manganese
.1 cleanup (TOTAL) Cr &
.8 levels currently
.05 cleanup levels for
lead
WATER in S.I. CR
is 90% on CR to

1986 or 1987
meeting w/ IEPA
8 or 9 ppm according
to facility IEPA
suggested they add

sodium bisulfite.

Upper aquifer
50 to 68'
aquitard 10 to 40'
Another aquifer used
for drinking water

Pond aquifer in upper
level that shows
lead and chrome

Closure method has
not been decided

There was a operation
gravel mining level one
in back

10f

Three monitoring screened @ bottom of upper aquifer - significantly below cleanup objectives

Recharge wells the only one that has caused problems

Surface water goes to impoundment or pond nearby or into soil.

No City Discharge permits

10s

No USTs Never

Underwent a CERCLA investigation - summary of initial results

Conducted ten soil samples around the area

Also took additional samples off-site

217 782-6760

IEPA person

Nika, Kim

Springfield

Took some trowel samples

Sampled for everything metal, VOCs, herbicides, etc.

Initiated by RCRA ~~SITE~~ on the facility

These spills were to be addressed during the investigation

Part A permit application was filed - rescinded their hazardous waste number after that.

EP toxicity levels were high in 1985

Regulated unit is surface impoundment

They use some oils ~~to~~ coat the bars after chrome plating

Facility tour 11:10

Magnetic Separator Separates metal parts from water metal mixture from grinding machines

Photo 1 South Magnetic Separator on grinder dry metal parts and currently put in roll off

grind the bar to a required finish size

PVC coated in plating tank Pits

Tank levels are monitored if there is a leak. They should be notified along with visual inspection of pits.

30 x 2 x 7 - 2 tanks
2 x 6 x 14 deep 1 tank

normal plating cycle is about 1/2 hour

100 lb cans of chromic acid flake is stored on a concrete floor next to the plating line

Rectifiers supply the DC current for the plating operation

They have two mechanical polishers after the bar is plated

They rinse the plated bar over the tank

The water is at about 130°F

They use this in the "muscle" of industries - cars, Snowmobiles, Racing Shock absorbers, in Forklifts etc.

They have an induction hardener & use pond water to quench it

Having improve the finish on the surface - a hard piece is usually not plated

They put Potter paper from cooling fluid from honing machine into the rolloff box

Intake Pump and recharge well

S - Photo 2

Water is pumped from buoy to cooling water and discharged.

PRC observed fish (large) in the pond

Photo 3
Roll off box on a concrete area covered with wood metal cover. No sign of spill or leak No tray (scrubber) This stage Mist Eliminator area where a release of chromic acid occured
Photo 4 NW
No visible signs of erosion Units were different construction when release occured area considered a low spot.

Formerly stored chromic acid in the Northeast corner of the facility - Spill 2 occured here
Photo 5 CMC WEST
Currently a grassy area - No sign of stressed vegetation

Pond may have
been caused by
poor historical
product managgmant

No response from
the agency concerning
liner.
Prefer to put another
isolation step on
the heat exchanger
process

On the east
Cement and Gravel
operation
Aur CMC OREMVB

CITY WWTP to
North + WEST
FIELD TO SOUTH
PRE OFF-SITE
12:20 pm 80F, CLEAR
CALM